REMARKS

After the foregoing amendment, claims 1-11, as amended, are pending in the application. Claim 11 has been amended to more particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Applicants submit that no new matter has been added to the application by the Amendment.

Objection to the Specification

The Examiner objected to the title as not being descriptive. Applicant has replaced the title with a new title which is descriptive of the claimed invention. Applicants respectfully request reconsideration and withdrawal of the objection to the title.

Rejection - 35 U.S.C. § 102

The Examiner rejected claims 1, 2 and 11 under 35 U.S.C. § 102 as being unpatentable over U.S. Patent No. 5,067,122 (McGee).

McGee is directed to a CD recorder and/or reproducer system for automatic determination of the monitor sensitivity of a radiation emitting arrangement comprising a laser diode and a photodiode.

McGee discloses in Fig. 1, an emitter L, a monitor device M for indicating the output level of the backward beam of the emitter L and photodetectors D1-D4 for indicating the output level of the portion of the forward beam of the emitter L which is reflected off of an optical disc 20. McGee further discloses at Fig. 4, monitor loop 40 and apparatus loop 42. described below.

As well known, it is very important that the optical output level of an emitter used for reading and recording on an optical disc be accurately controlled. McGee teaches that the optical output level of the emitter can not be accurately predicted from only the emitter drive current (col. 5, lines 17-22). Accordingly, McGee teaches a system configuration, described at Fig. 4 and at col. 6, line 55 to col. 8, line 14, comprising monitor loop 40 for determining the output level of the emitter based on a control signal MREF. Monitor loop 40, comprises monitor device M, ADC 48, variable scaling circuit 54, summing circuit 56, integrator 58 DAC 50, driver 60 and emitter L. Controller 44 provides a the control signal MREF to the summing circuit and a control signal SENS to the variable scaling circuit.

McGee teaches that the accurate determination of the output level of the emitter by monitor loop 40 requires knowing the sensitivity of the monitor device M. Unfortunately, the sensitivity of the monitor device M, used for indicating the emitter output level, is highly variable between different radiation emitting arrangements, due mainly to variations in the position of the monitor diode M relative to the emitter (col. 5, lines 45-48). Accordingly, McGee describes at Fig. 5 and col. 8, line 62 to col. 9 line 38, a calibration routine CC', for determining the monitor sensitivity each time the apparatus is turned on. In the calibration routine CC' the apparatus loop 42 is first disabled in order that the measurement of the monitor sensitivity is not influenced by the optical path which includes the optical disc. The calibration routine then applies first and second values of MREF 92, 96 to the monitor loop 40 and measures the corresponding values DRI in order to calculate the monitor sensitivity at step 100.

Apparatus loop 42 varies the input to the laser L in order to compensate for variations tolerances in the optical pickup and variations in the reflectivity of the discs loaded into the player (col. 10, lines 48-55).

Apparatus loop 42 comprises photodetectors D1-D4, summer 114, ADC 48 summer 120, and threshold circuit 122 and the integrator 58, DAC 50, driver 60 and emitter L. The output of threshold circuit 122 feeds summer 56 when ENS =1, thus providing an input to monitor loop 40. At the summing circuit 56, the apparatus loop error signal SERR modifies the monitor reference level to modify the output of the emitter in response to the output of the optical system 2 which includes the optical pickup and the optical disc. When monitor sensitivity is being established, apparatus loop 42 is disabled by making ENS=0 (col. 10, lines 16-23).

The Examiner states at page 3, lines 7- 3 that "in reading data from the optical disc (Im is read from the optical disc by the monitor diode, col. 5, lines 17-20), the target value is changed so as to compensate for the sensitivity of the second photodetector thereby controlling power from the laser beam, said variation of the sensitivity of the second photodetector being detected when write optimization is conducted." Applicants respectfully traverse the rejection.

Claim 1 recites, inter alia,

> *An optical disc drive comprising.....wherein in reading data from the optical disc, the target value is changed so as to compensate for a variation of the sensitivity of the second photodetector, thereby controlling the power of the laser beam*

emitted from the laser light source, said variation of the sensitivity of the second photodetector being detected when a write power optimization is conducted.

Claim 1 recites that compensation for variation in the sensitivity of the second photodetector (i.e. the photodetector which measures the output power of the emitter) is accomplished by detecting the variation of the sensitivity when write power optimization is conducted and by changing the target value (i.e. the value of a signal applied to the summing point of the feedback loop controlling the emitter output). In contrast, McGee discloses compensating for the variable monitor sensitivity by determining the value of the monitor device sensitivity using a calibration procedure and by adjusting the scaling factor of the scaling device in the monitor loop to "zero out" the variation.

The structure recited in claim 1 differs from the structure described by McGee in at least two respects: (1) McGee determines the value of the monitor device sensitivity using a calibration procedure which directly measures the ratio I_w/O_L of the device such that a known relationship exists between the control signal MREF and the emitter output level. In contrast, the claimed invention detects a variation (i.e. change) in the monitor device sensitivity in terms of the change in the optimum light power for writing and does not determine the value of the monitor device sensitivity using a calibration procedure or other wise and (2) McGee adjusts the multiplicative scaling factor in the scaling device to normalize the monitor sensitivity in the monitor loop to thereby maintain a constant relationship between the reference input and the emitter output level. In contrast, the claimed invention changes the target value (reference input) to the feedback loop controlling the emitter output level to compensate for the variation in monitor sensitivity as determined during the write power optimization process.

For all the above reasons, Applicants submit that McGee does not anticipate claim 1. Accordingly Applicants respectfully request reconsideration and withdrawal of the §102 rejection of claim 1.

Further, it is respectfully submitted that since claim 1 has been shown to be allowable, claim 2 dependent on claim 1 is allowable, at least by its dependency. Accordingly, for all the above reasons, Applicants respectfully request reconsideration and withdrawal of the § 102 rejection of claim 2

Amended claim 11 recites, inter alia,

A method for driving an optical disc drive ... comprising the steps of:.... sensing a decrease in the sensitivity of the second photodetector while writing data to the optical disc.

As described above, McGee discloses sensing the sensitivity of the second photodetector (i.e. monitor M) by the process of measuring the output of the emitter at two different levels according to the process steps 90-104 and not while writing data to the optical disc. Applicants submit that McGee does not anticipate amended claim 11. Accordingly Applicants respectfully request reconsideration and withdrawal of the §102 rejection of claim 11.

Rejection - 35 U.S.C. § 103

The Examiner rejected claims 3-10 under 35 U.S.C. § 103 as being unpatentable over McGee in view of U.S. Publication No. 2002/0036963 (Shimoda). Applicants respectfully traverse the rejection.

The Examiner does not specifically state what McGee does not disclose but does state that Shimoda does disclose an optical disc drive comprising target setting means for sequentially changing the target value in writing data on the optical disc and eventually the target value in writing data to the optical disc. The Examiner further states that it would have been obvious to a person of ordinary skill at the time if the invention to combine the optical disc drive of McGee to test the target value and record the best value on the optical disc as taught by Shimoda. Applicants respectfully traverse the rejection.

Shimoda describes an apparatus for adjusting the emission power of a write light on a recording medium. The apparatus comprises a pickup 3 including a semiconductor laser emitter and a photodetector which receives light reflected from the recording medium, an RF amplification section 7 which receives the output of the photodetector, a feature extraction section 6, a controller 13 and a record power adjustment section 12.

Shimoda describes a method using the above apparatus for forming pits of an appropriate form in a recordable medium. Briefly stated, the method described by Shimoda examines the waveform reproduced from the pits when the pits are formed by the write light of

varying power and selects a light power which results in features extracted from the waveforms which fall within a certain range.

As stated above, McGee does not teach of suggest changing the target value to compensate for a variation of the of the second photodetector as recited in claim 1, nor does McGee teach or suggest detecting the variation of the sensitivity of the of the second photodetector while write power optimization is being conducted, as recited in claim 1.

Shimoda does not make up for this deficiency. Shimoda merely describes a method of optimizing the writing power of a the emitter without even recognizing the problem of the variation of a monitor device. In fact, Shimoda does not even include a device (second photodetector) for monitoring the output level of the emitter in his apparatus.

Because Shimoda does not make up for McGee's deficiency in meeting all the limitations of claim 1, claims 3-10 are allowable over the combination of McGee and Shimoda, at least by their dependency on claim 1. Accordingly, Applicants respectfully request reconsideration and withdrawal of the §103 rejection of claims 3-10.

Conclusion

Insofar as the Examiner's objections and rejections have been fully addressed, the instant application, including claims 1-11, is in condition for allowance and Notice of Allowability of claims 1-11 is therefore earnestly solicited.

Respectfully submitted,

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